

Supplementary Information

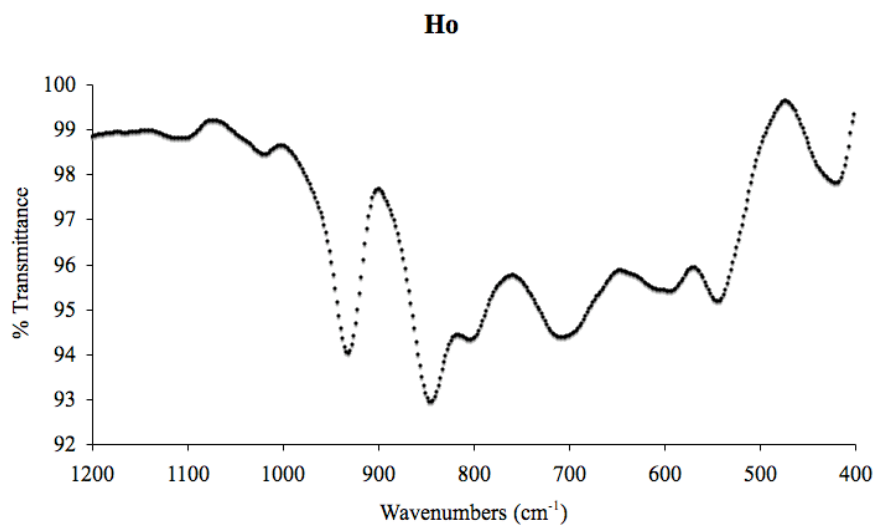
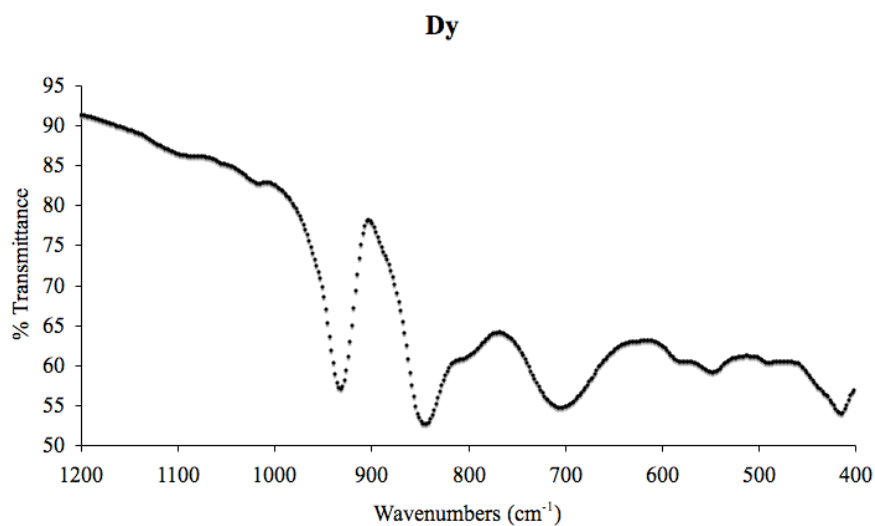
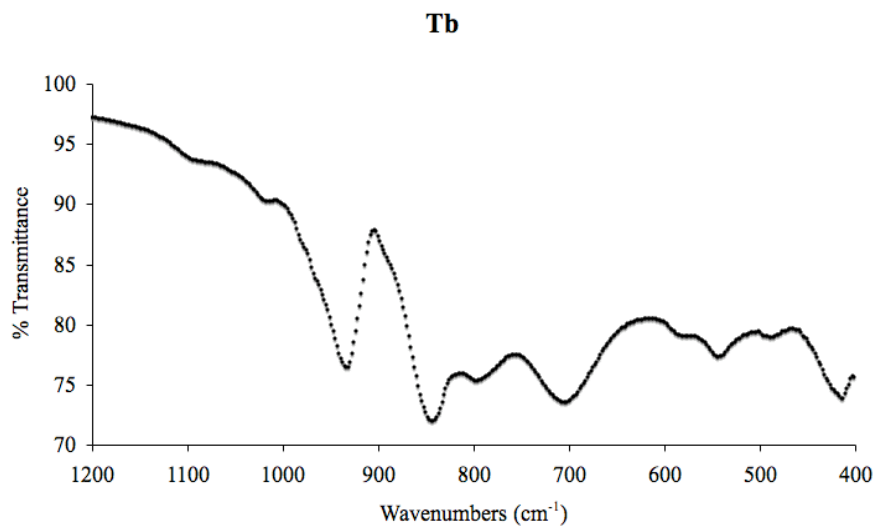
Mononuclear Lanthanide Single-Molecule Magnets Based on the Polyoxometalates $[\text{Ln}(\text{W}_5\text{O}_{18})_2]^{9-}$ and $[\text{Ln}(\beta_2\text{-SiW}_{11}\text{O}_{39})_2]^{13-}$ ($\text{Ln}^{\text{III}} = \text{Tb}, \text{Dy}, \text{Ho}, \text{Er}, \text{Tm}$ and Yb)

Murad A. AlDamen, Salvador Cardona-Serra, Juan M. Clemente-Juan, Eugenio Coronado,* Alejandro Gaita-Ariño, Carlos Martí-Gastaldo, Fernando Luis and Oscar Montero.

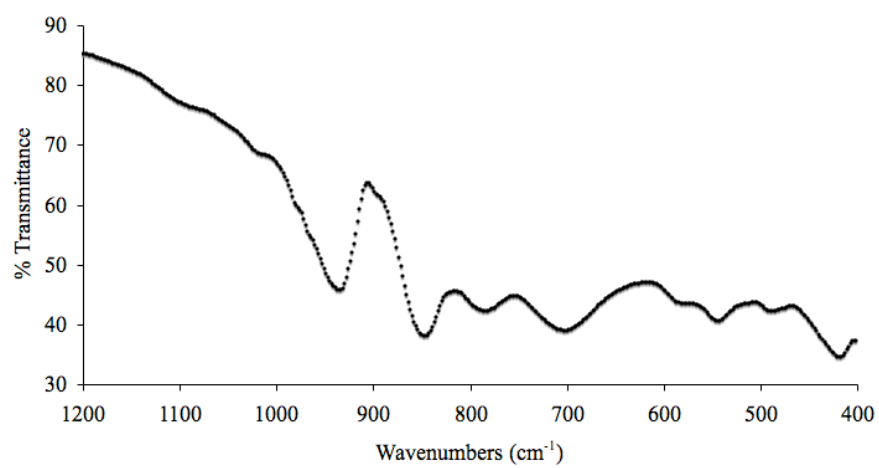
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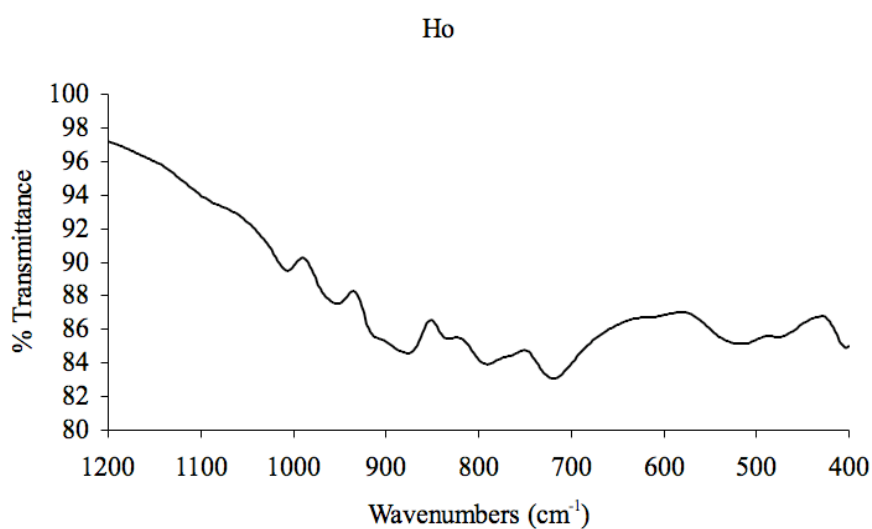
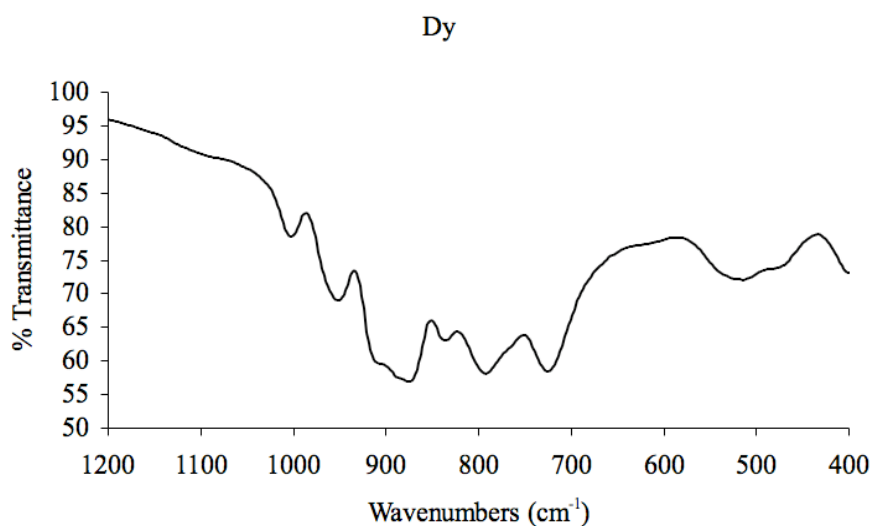
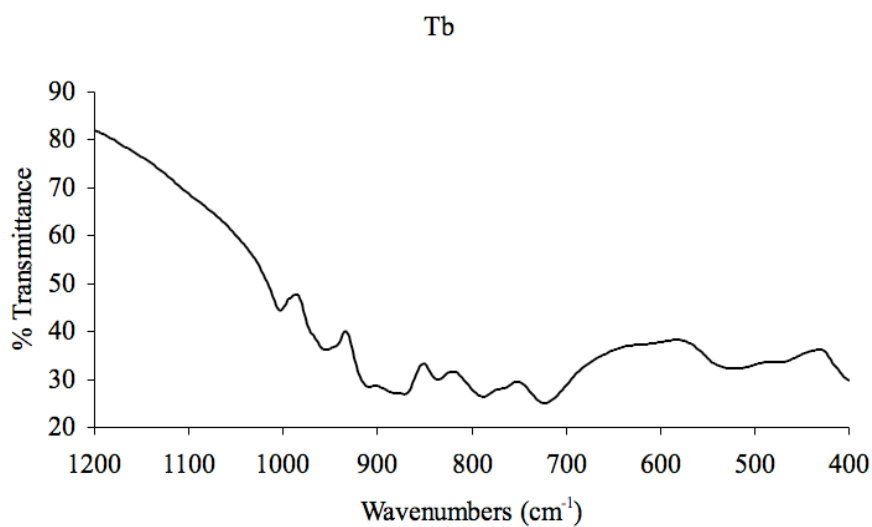
SI 1. FT-IR spectra for the $[\text{Ln}(\text{W}_5\text{O}_{18})_2]^{-9}$ family where Ln=Tb, Dy, Ho and Er.

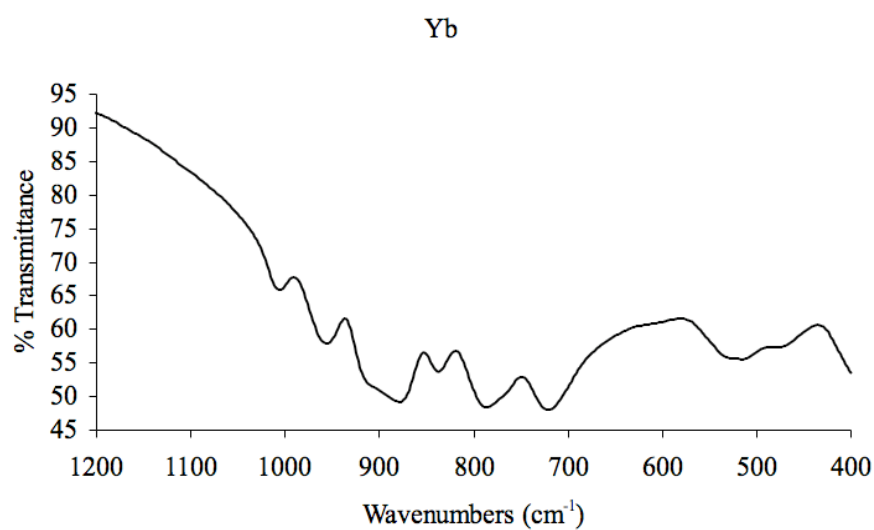
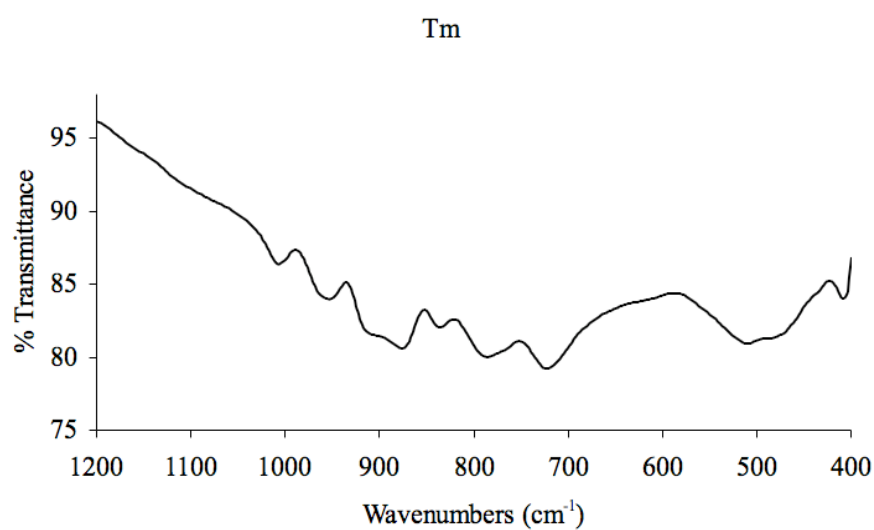
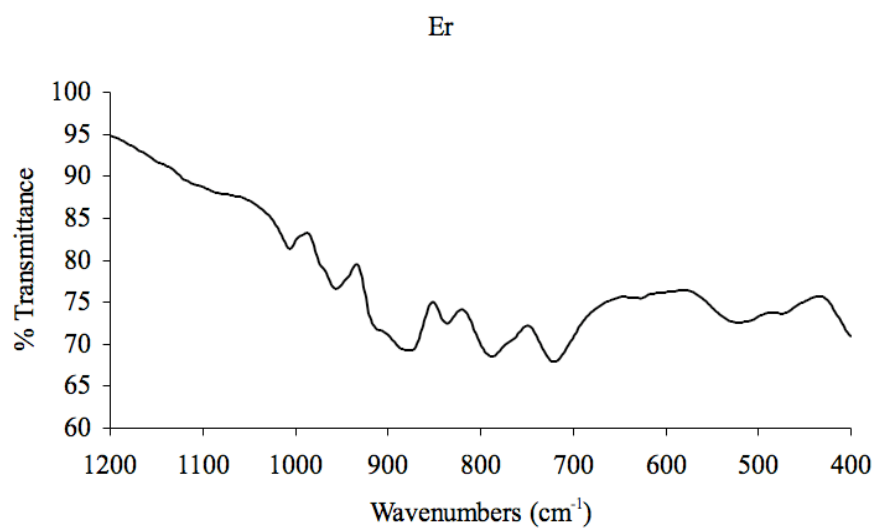


Er



SI 2. FT-IR spectra for the $[\text{Ln}(\beta_2\text{-SiW}_{11}\text{O}_{39})_2]^{13-}$ family where Ln=Tb, Dy, Ho, Er, Tm and Yb.

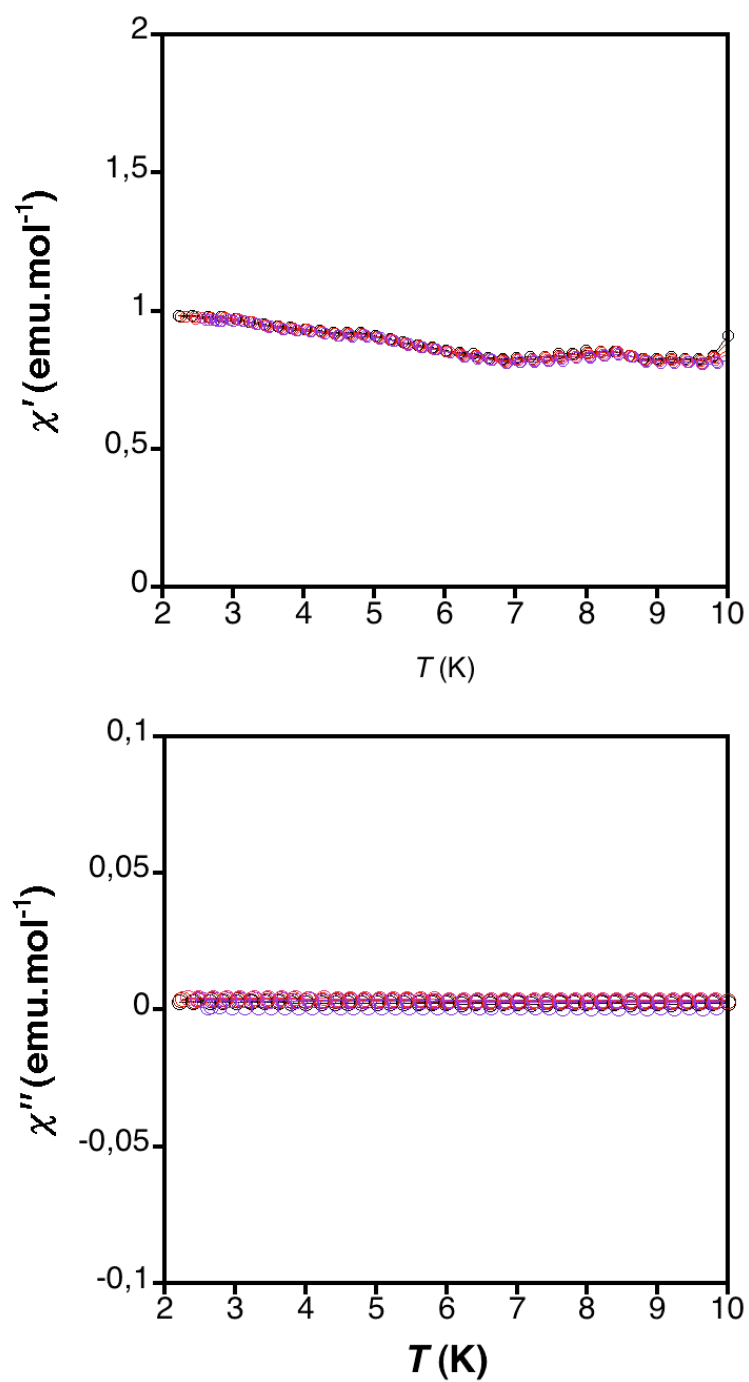




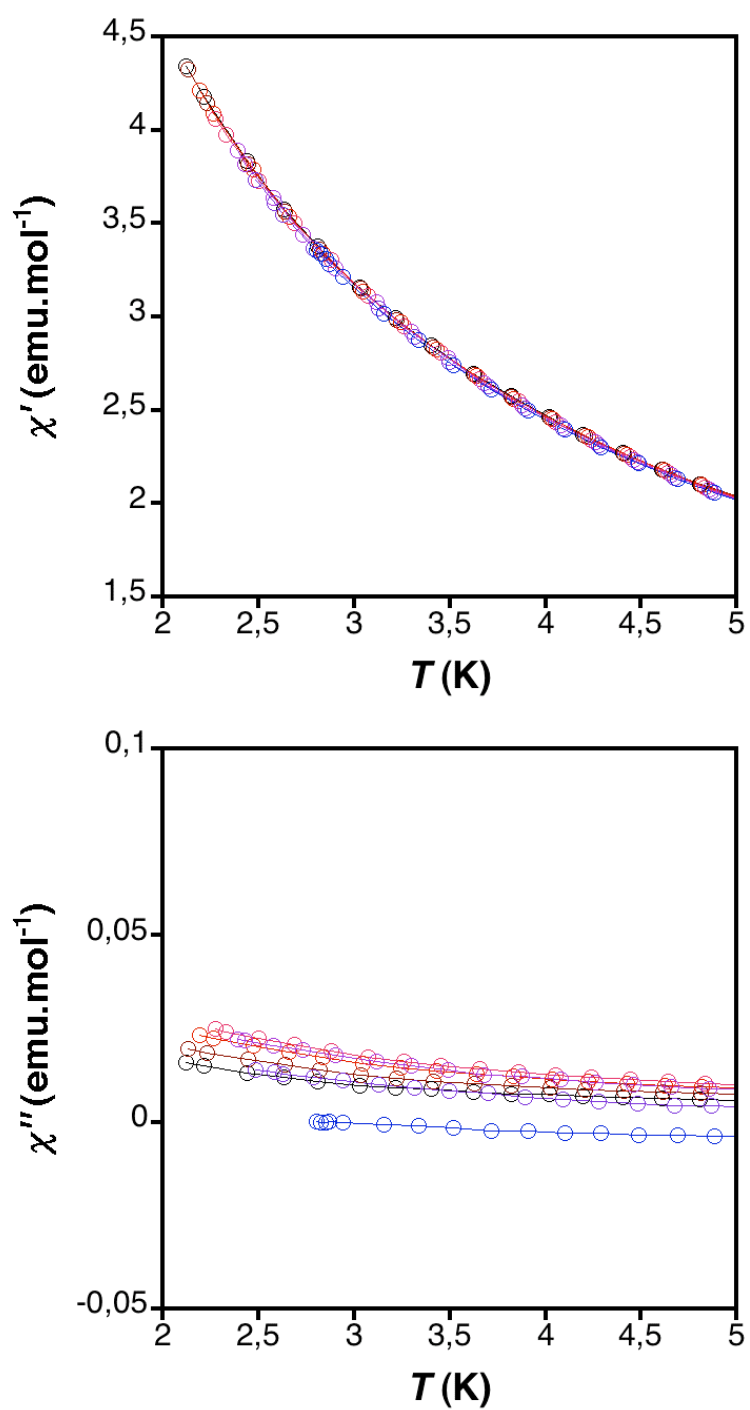
SI 3. Electron probe microanalysis (EPMA) data for the $[\text{Ln}(\text{W}_5\text{O}_{18})_2]^{-9}$ and $[\text{Ln}(\beta_2\text{-SiW}_{11}\text{O}_{39})_2]^{13-}$ families.

	$[\text{Ln}(\text{W}_5\text{O}_{18})_2]/\text{Na}_9$					$[\text{Ln}(\beta_2\text{-SiW}_{11}\text{O}_{39})_2]/\text{K}_{13}$						
	Er	Tb	Dy	Ho	Theor.	Er	Tb	Dy	Ho	Yb	Tm	Theor.
%W	4.9	5.4	5.4	5.3	5	3.0	3.2	2.9	3.0	2.8	3.0	2.8
%Ln	49.8	50.1	51.2	49.6	50	60.8	62.1	61.0	60.3	61.3	60.8	61.1
%Na/K	45.3	44.5	43.4	45.1	45	36.2	34.7	36.1	36.7	35.9	36.2	36.1

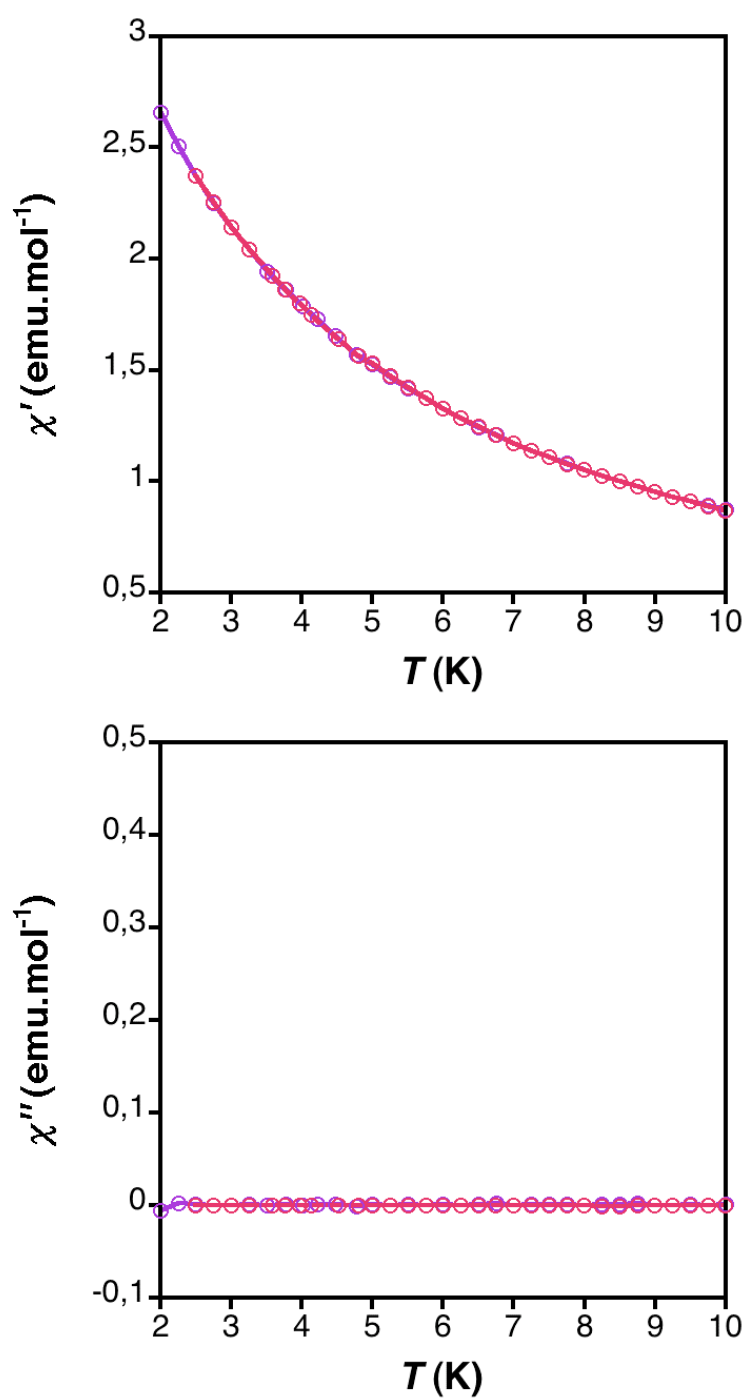
SI 4. In-phase (up) and out-of-phase (down) dynamic susceptibility of **1** at 1467, 2154, 3162, 4641, 6813 and 10000 Hz.



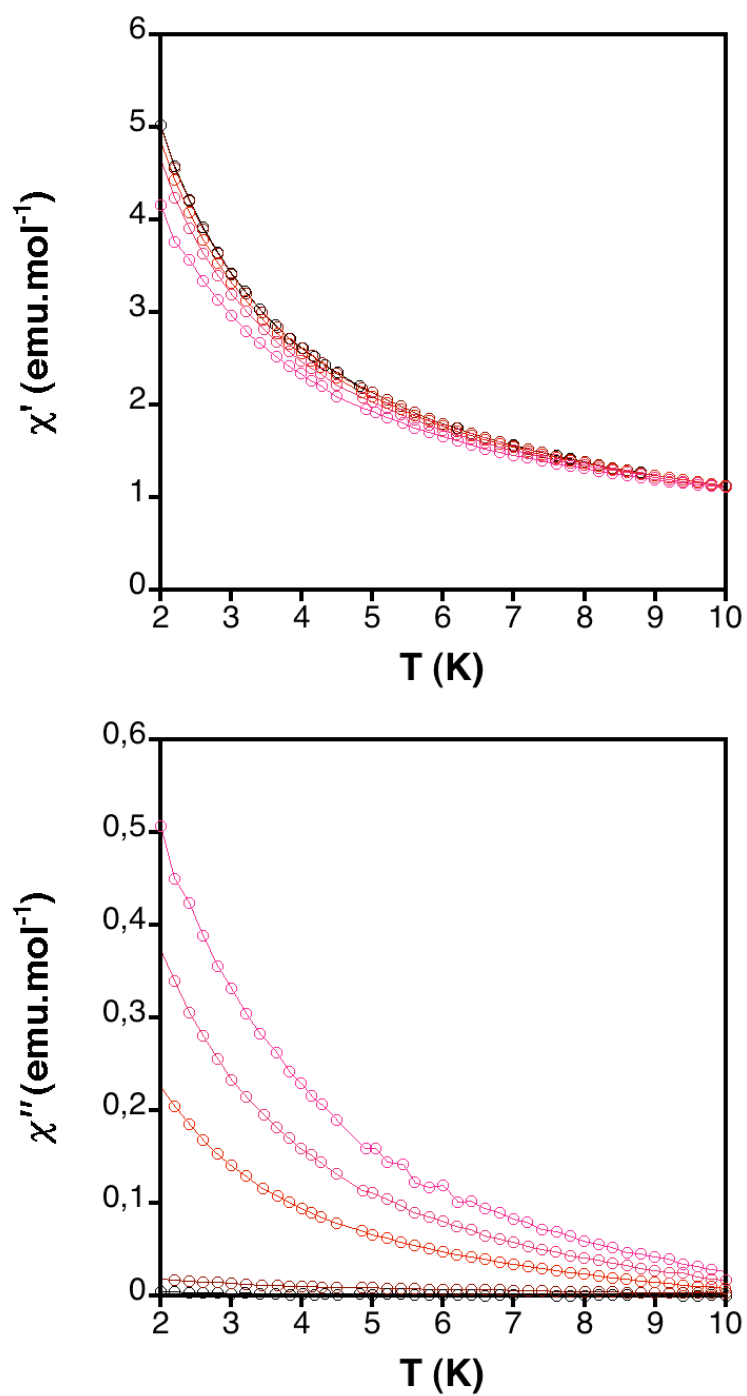
SI 5. In-phase (up) and out-of-phase (down) dynamic susceptibility of **2** at 1000, 1467, 2154, 3162, 4641, 6813 and 10000 Hz.



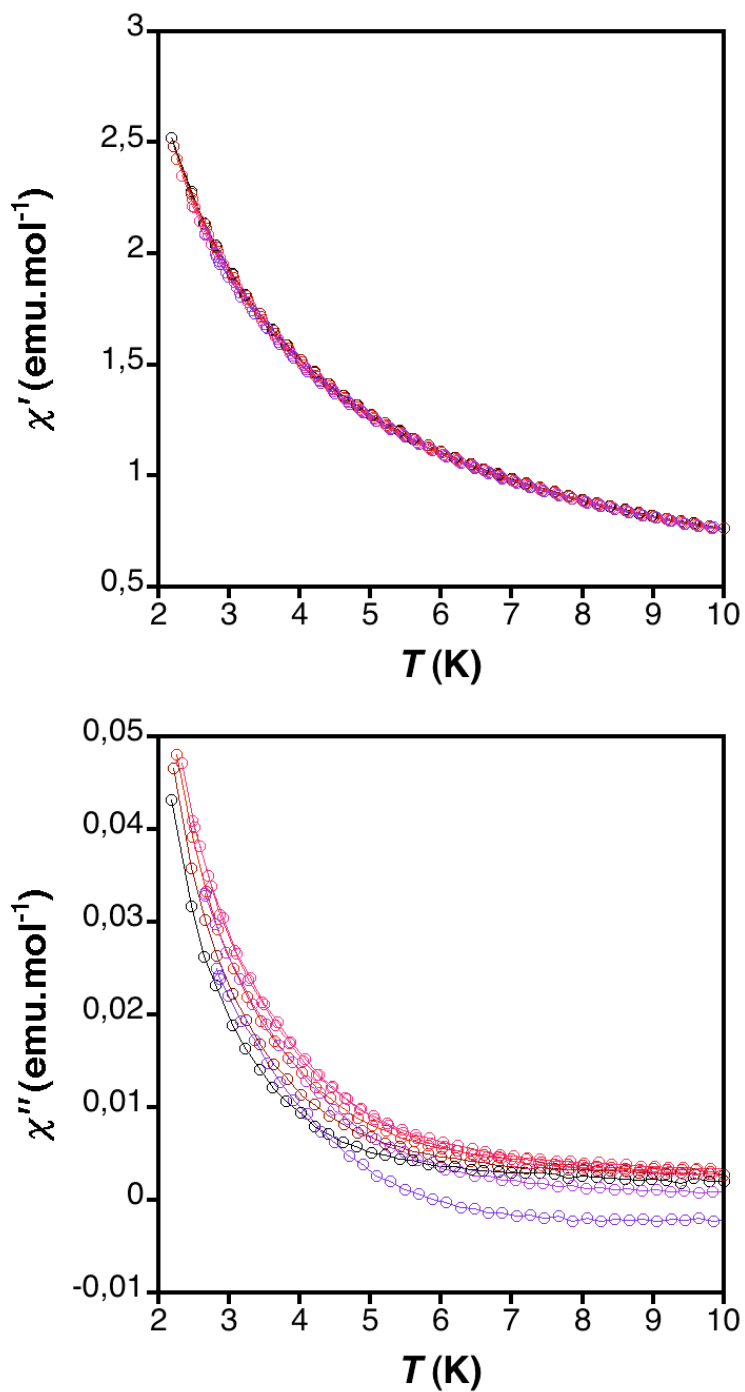
SI 6. In-phase (up) and out-of-phase (down) dynamic susceptibility of **5** at 1 and 110 Hz.



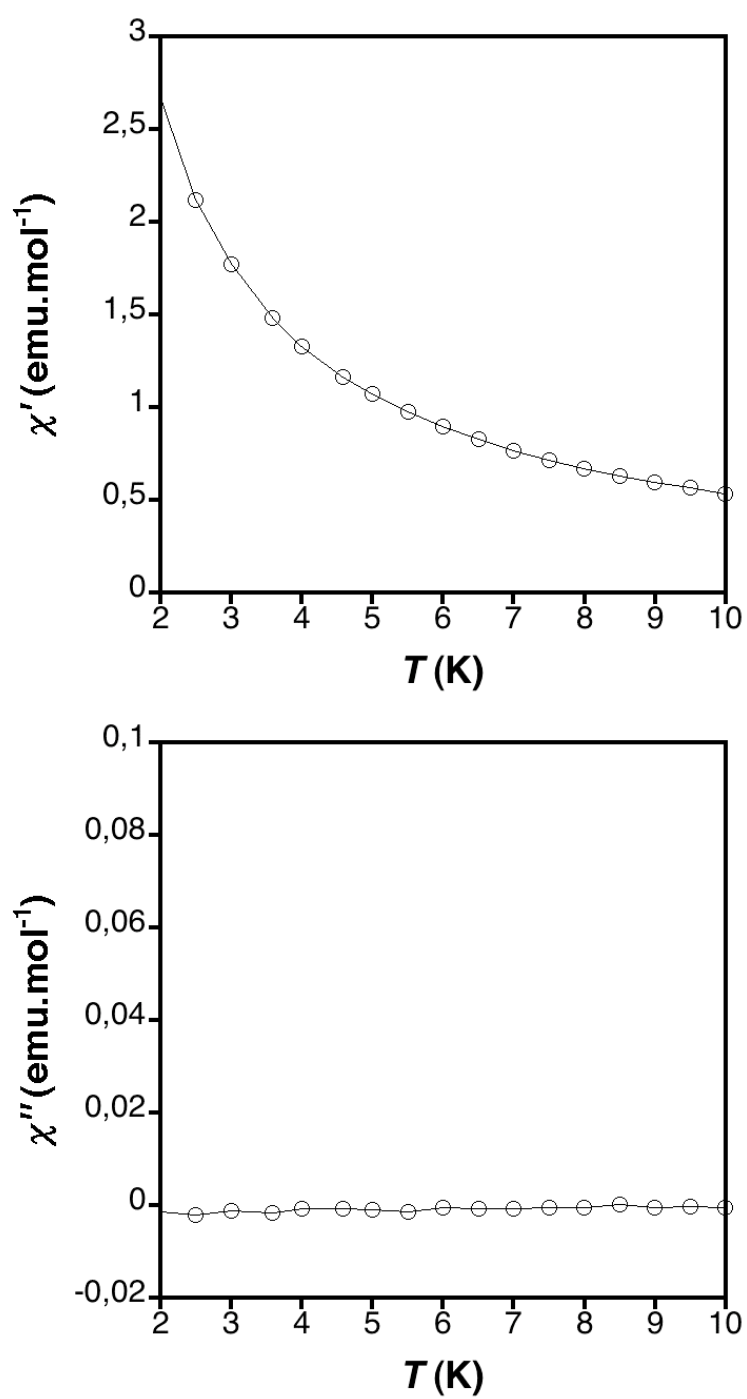
SI 7. In-phase (up) and out-of-phase (down) dynamic susceptibility of **6**. High frequency measurements from left to right: 1, 10, 110, 332 and 1000 Hz.



SI 8. In-phase (up) and out-of-phase (down) dynamic susceptibility of **7**. High frequency measurements from left to right: 1000, 1467, 2154, 3162, 4641, 6813 and 10000 Hz.



SI 9. In-phase (up) and out-of-phase (down) dynamic susceptibility of **9** at 332 Hz.



SI 10. In-phase (up) and out-of-phase (down) dynamic susceptibility of **10** under no external applied field. High frequency measurements from left to right: 56, 133, 316, 750, 1800, 4200 and 10000 Hz.

